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Werner Mantel

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EXAMINER

GAWORECKI, MARK R

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/510,017	Applicant(s) MANTELE ET AL.	
	Examiner Mark R. Gaworecki	Art Unit 2884	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-60 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 48 and 49 is/are allowed.
- 6) ☒ Claim(s) 1-6, 15-18, 20-23, 25-47 and 50-60 is/are rejected.
- 7) ☒ Claim(s) 7-14, 19 and 24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/1/04, 12/28/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 18, the term "can be thermostated" is unclear and does not disclose or suggest a specific structural limitation. This limitation could be read to mean that the system has a specific temperature control means or housed in a climate-controlled room.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 1-3, 5, 15-17, 20, 23, 25-32, 50 and 51 are rejected under 35

U.S.C. 102(b) as being anticipated by Okazaki, Laboratory of Molecular Biophotonics (EP 0884584 A1, hereafter referred to as *Okazaki*).

With respect to claims 1 and 50, *Okazaki* shows the use of a device for measuring the components of a system (abstract) wherein the system includes an ATR body (total reflection absorption prism, 28) and a mid-IR light source (7 micrometers, column 6, line 40; infrared light source, 3), wherein the ATR body has two planar, parallel boundary surfaces (Fig. 1) and is transparent to measuring radiation in the middle infrared region (7 micrometers, column 6, lines 39-40) and light can undergo attenuated total reflection at least six times on at least one of the surfaces of the ATR (15 reflections, shown in Fig 1).

With respect to claim 2, *Okazaki* shows the use of a detector (5) and a computer-aided evaluation unit (7).

With respect to claim 3, *Okazaki*, as applied to claim 2, shows an evaluation unit (7), which inherently could be replaced by another evaluation unit.

With respect to claim 5, *Okazaki*, as applied to claim 1, discloses a total reflection prism coated with a non-metal (silicone rubber type adhesive, column 7, lines 11-18).

With respect to claim 15, *Okazaki* teaches the bottom side of the ATR to be in contact with a measurement solution and thus form part of a measurement cell (column 6, lines 29-31).

With respect to claims 16 and 51, the prism of *Okazaki* is made of zinc selenide (column 6, line 2), which has a refractive index of 2.89. (See enclosed ZnSe datasheet).

With respect to claim 18, the system of *Okazaki* is not shown to be "thermostated" but the claim states that the system "can be" and therefore with the addition of proper structural additions, the system of *Okazaki* could also be thermostated. See rejection under 35 U.S.C. 112, second paragraph above.

With respect to claim 20, *Okazaki* teaches an infrared-transparent coating on the ATR in the region that is in contact with a sample to be analyzed (column 6, lines 29-43).

With respect to claims 25-32, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. The apparatus of *Okazaki* is capable of performing this intended use and thus meets the limitations of these claims.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Okazaki*.

With respect to claims 21, 22 and 52, *Okazaki* does not disclose the exact thickness of the Teflon coating on the ATR prism, but describes the necessity for the thickness to be "less than several hundred nm or less". It would have been obvious to one of ordinary skill in the art at the time the invention was made to manufacture the thickness of the coating to be sufficiently thin to allow evanescent waves of infrared light from the prism to reach the subject being measured (column 6, lines 39-43).

8. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Okazaki* in view of *Uchida et al.* (7,110,112).

With respect to claim 4, *Okazaki*, as applied to claim 1 above, further shows the use of Fourier transforms for evaluation of the output of a radiation detector. However, *Okazaki* fails to show the use of a quantum cascade laser as a light source. *Uchida* shows a concentration measurement apparatus (abstract) using an ATR device (51) and a mid-infrared light source (column 5, lines 52-58). As an alternative, *Uchida* uses a quantum cascade laser (column 8, line 63-column 9, line 5). It

would have been obvious to one of ordinary skill in the art at the time the invention was made to use a quantum cascade laser as a mid-infrared source, as *Uchida* describes this type of light source as an ideal for measurement of concentrations of certain substances, in order to accurately measure specific constituents of a fluid, depending on the use of such a system, wherein glucose is used as an example (*Uchida*, column 9, lines 1-5).

With respect to claim 6, it would have been obvious, given the use of a particular quantum cascade laser, to emit at least one defined frequency, as it is a physically inherent property of lasers to emit light of a particular frequency.

9. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Okazaki*, in view of *Katzir* (2002/0125589).

With respect to claim 17, *Okazaki* shows the use of an arithmetic/control computer (7) for receiving the signals from an infrared detector (5), but fails to describe the claimed methods for processing the data output from the detector. *Katzir* describes the use of an ATR, wherein multivariate or neural network analysis is performed to correlate output signals from a detector to concentrations of constituents of a bodily fluid, such as blood ([0040]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use these processing techniques, as these were well-known in the art, as demonstrated by *Katzir*.

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10. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Okazaki* in view of *Harrison et al.* (6,534,450).

With respect to claim 23, *Okazaki*, as applied to claim 20 above, fails to show the use of a diamond layer on the ZnSe prism. *Okazaki* describes coating the ATR prism on a side facing the subject to be measured with a metal to prevent the subject from coating the ATR prism (column 5, lines 11-15; column 7, lines 18-23). *Harrison* teaches measuring a subject using a six reflection diamond coated ZnSe ATR element, thus showing that a diamond coated ZnSe ATR element was well-known at the time the invention was made, as well as manufactured by Applied Systems, Inc. (column 14, lines 56-59). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a diamond coating on a ZnSe ATR element, as *Harrison* demonstrates the use of such an element, wherein this type was well-known in the art.

11. Claims 33, 34, 37, 38, 53, 54, and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Okazaki* and *Uchida* as applied to claim 4 above, and further in view of *Ashibe et al.* (5,772,606).

With respect to claims 33, 34, 37, 38, and 57, the combination as applied to claim 4 above fails to show the system to be adapted to be included in a urinal, urinal pan, or urinal drainpipe. *Ashibe* shows a system for carrying out a urine test on a subject using a urinal with a



measurement cell through which a light beam is directed and a sensor is provided for analyzing the urine contained in the cell (abstract). It would have been obvious to use the analysis system of *Okazaki* and *Uchida* in conjunction with a urinal such as that of *Ashibe* in order to use the analysis system to determine the qualitative properties and constituents of the urine of a subject for the determination of health conditions of the subject (*Okazaki*, column 13, lines 31-47).

With respect to claim 53, see the rejection of claims 16 and 51 under *Okazaki* above.

With respect to claim 54, see the rejection of claim 4 under *Okazaki* and *Uchida* above.

12. Claims 35, 36, 39, 40, and 55-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Okazaki* and *Uchida* as applied to claim 4 above, and further in view of *Dou et al.* (5,815,260)

With respect to claims 35, 36, 39, 40, and 57, the combination as applied to claim 4 above fails to show the system to be adapted to be included in a toilet. *Dou* shows a system for carrying out a urine test on a subject in which a toilet with a urine collection bowl is fitted with a system for analyzing constituents of collected urine (abstract). It would have been obvious to use the analysis system of *Okazaki* and *Uchida* in conjunction with a toilet such as that of *Dou* in order to use the analysis system to determine the qualitative properties and constituents of the urine of a

subject for the determination of health conditions of the subject (*Okazaki*, column 13, lines 31-47).

With respect to claim 55, see the rejection of claims 16 and 51 under *Okazaki* above.

With respect to claim 56, see the rejection of claim 4 under *Okazaki* and *Uchida* above.

13. Claims 41-46, 59 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Okazaki* and *Uchida* as applied to claim 4 above, in view of *Bornstein et al.* (5,436,454).

With respect to claims 41-45, the combination of *Okazaki* and *Uchida*, as applied to claim 4 above, fails to demonstrate the use of the system as a cannula, stent, or needle. *Bornstein* uses an ATR using Fourier transform infrared spectroscopy in an optical probe (abstract) or stent (stent and hollow needle, column 6, lines 29-35).

With respect to claims 43 and 46, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. The combination of *Okazaki*, *Uchida*, and *Bornstein* would be capable of performing this intended use and thus meets the limitations of these claims.

With respect to claims 59 and 60, see the rejection of claims 16 and 51 above.

***Allowable Subject Matter***

14. Claims 48 and 49 are allowed.

15. Claims 7-14, 19, and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. The following is a statement of reasons for the indication of allowable subject matter:

With respect to claims 7 and 8, the combination as applied to claim 4 above, fails to disclose the use of multiple quantum cascade lasers.

With respect to claims 9-13, *Okazaki*, as applied to claim 1 above, fails to demonstrate the use of quantum cascade lasers operated with in a time sequence or with predetermined pulse durations with predetermined, defined intensity.

With respect to claim 24, *Okazaki*, as applied to claim 2 above, fails to show the use of a photoacoustic detector.

With respect to claims 14, 19, 47-49, the combinations as applied above, fail to disclose an ATR which is pressure resistant, specifically up to 100 bar.

***Conclusion***

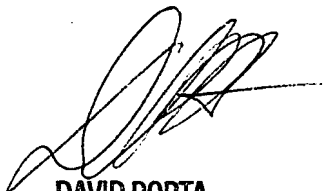
17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark R. Gaworecki whose telephone number is (571) 272-8540. The examiner can normally be reached on Monday through Thursday, 7:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MG  
18 May 2007



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